1896MNRAS..56..443.

MONTHLY NOTICES

OF THE

ROYAL ASTRONOMICAL SOCIETY.

VOL. LVI. JUNE 12, 1896. No. 9

A. A. COMMON, LL.D., F.R.S., President, in the Chair.

Rev. Frederick Lisle Bullen, the Rectory, Littleton-upon-Severn, Gloucestershire; and
Ernest W. Ellerbeck, the Observatory, Scarborough,

were balloted for and duly elected Fellows of the Society.

The following Candidates were proposed for election as Fellows of the Society, the names of the proposers from personal knowledge being appended:—

George Alexander Sime Atkinson, 238 Newport Road, Cardiff, South Wales (proposed by H. W. Lloyd Tanner); and
John Burt Trivett, Computer, Trigonometrical Survey of New South Wales, Department of Lands, Sydney, Australia (proposed by Joseph Brooks).

Ninety presents were announced as having been received since the last meeting, including, amongst others:—

Chart of Southern Circumpolar Stars, presented by H. C. Russell; Stellar Spectra, photographed at South Kensington with the 6-inch prismatic camera, presented by J. Norman Lockyer; Enlargements from photographs of the region surrounding η *Argûs*, taken at the Royal Observatory, Cape of Good Hope, with exposures of 3^m, 1^h, $3^h\ 15^m$, 12^h, and 24^h, presented by David Gill.

Downloaded from http://mnras.oxfordjournals.org/ at Stockholm University Library on July 15, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System

1896MNRAS..56..443.

An Answer to Certain Questions asked in the "Bulletin Astronomique," tome xiii, Mai 1896, *on Time Measurement.* By E. J. Stone, M.A., F.R.S., Radcliffe Observer.

In the *Bulletin Astronomique*, tome xiii, Mai 1896, there is a short review of my paper on the Corrections of the Epoch and Mean Motion required by Hansen's Lunar Tables.

The writer makes no remarks whatever on the accuracy with which the observations of the Moon 1750–1892 are represented by Hansen's Lunar Tables with the corrected epoch and mean motion; and I presume, therefore, that he is satisfied upon that point. See *Monthly Notices*, vol. lv. No. 2, p. 58.

But, with the exception of a slight ambiguity in the definition of the physical meaning of the linear quantity, a, which satisfies the identity

$$f = n^2 a^3,$$

a concise, clear, and accurate statement of the views upon which my work is based is given; and some questions are asked and some formulæ brought forward which deserve careful consideration.

The notation adopted is that, for a selected epoch, n represents the Earth's mean motion in heliocentric longitude in the adopted unit of time measured from the mean equinox at epoch; ω, the constant angular velocity of the Earth about its axis in the unit of time; f, the accelerating effects of the Sun's mass taken as the unit of mass in the unit of time at the unit of length; a, a linear constant which satisfies the condition

$$\left(\frac{f}{n^2}\right)^{\frac{1}{3}};$$

p and q, the mean regressions in longitude and right ascension respectively of the true equinox from the mean equinox at epoch:

$$\mathrm{N} = n + p : \Omega = \omega + q.$$

In order that these quantities may be combined in our mathematical investigations, it is, of course, absolutely necessary that n, ω, p, q, and f should be referred to the same unit of time, and f and a expressed in terms of the same unit of length, and that the same units should be employed for the expression of all the time quantities and linear quantities which appear in our formulæ.

The *exact* numerical values of the physical quantities represented by n, ω, p, q, f, and a will vary, according to well-known laws, with any changes which we may introduce into the units; and in tracing the effects of errors made we must proceed from exact equations to their approximate forms.

Downloaded from http://mnras.oxfordjournals.org/ at Stockholm University Library on July 15, 2015

© Royal Astronomical Society • Provided by the NASA Astrophysics Data System